



The influence of seasonal climate variability on mortality in pre-industrial Sweden

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Abstract:

BACKGROUND: Recent studies have shown an association between weather and climatic factors with mortality, cardiovascular and infectious diseases. We used historical data to investigate the impact of seasonal temperature and precipitation on total mortality in Uppsala, Sweden, during the first two stages of the demographic transition, 1749-1859. **DESIGN:** We retrieved mortality and population numbers of the Uppsala Domkyrka parish from digitised parish records and obtained monthly temperature and precipitation measures recorded in Uppsala during that time. Statistical models were established for year-to-year variability in deaths by annual and seasonal temperature and precipitation, adjusting for longer time trends. In a second step, a model was established for three different periods to study changes in the association of climate variability and mortality over time. Relative risks (RR) with 95% confidence intervals (CI) were calculated. **RESULTS:** Precipitation during spring and autumn was significantly associated with annual mortality (spring RR 0.982, CI 0.965-1.000; autumn RR 1.018, CI 1.004-1.032, respectively, per centimetre increase of precipitation). Higher springtime temperature decreased annual mortality, while higher summer temperature increased the death toll; however, both were only borderline significant (pEuro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)0.07). The significant effect of springtime precipitation for mortality was present only in the first two periods (1749-1785 and 1786-1824). On the contrary, the overall effect of autumn precipitation was mainly due to its relevance during the last period, 1825-1859 (RR 1.024, CI 0.997-1.052). At that time, higher winter precipitation was found to decrease mortality. **CONCLUSIONS:** In urban Uppsala, during the 18th and 19th century, precipitation appeared to be a stronger predictor for mortality than temperature. Higher spring precipitation decreased and higher autumn precipitation increased the number of deaths. However, this association differed before and during the early stages of industrialisation. Further research shall take age-specific differences into account, as well as changes in socio-economic conditions during that time.

Source: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3617646>

Resource Description

Exposure : ☒

weather or climate related pathway by which climate change affects health

Precipitation, Temperature

Geographic Feature: ☒

resource focuses on specific type of geography

Climate Change and Human Health Literature Portal

Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Sweden

Health Impact:

specification of health effect or disease related to climate change exposure

Morbidity/Mortality

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content